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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,816	04/14/2004	Nicholas T. Lange	04843-046001 / MCL 2558	5628

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P.O. BOX 1022  
MINNEAPOLIS, MN 55440-1022

EXAMINER
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SHRIVASTAV, BRIJ B

ART UNIT	PAPER NUMBER
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2859

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/823,816

Applicant(s)

LANGE, NICHOLAS T.

Examiner

Brij B. Shrivastav

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/19/04 &amp; 12/2205</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 101*

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 8-15 are rejected under 35 U.S.C 101 because the claimed invention is directed to non-statutory subject matter. Claims 8-15 present a computer readable medium. This computer readable medium is considered to be a data structure that does not define any functional interrelationships with the other claimed aspects of the invention which permit the data structure's functionality to be realized. It has been held that such a data structure is considered to be non-statutory under 35 U.S.C. 101 (see *Warmerdam* 33 F.3d at 1361, 31 USPQ2d at 1760). Further, apart from the utility requirement of 35 U.S.C. 101, usefulness under the present eligibility standard requires significant functionality to be present to satisfy the useful result aspect of the practical application requirement (see *Arrhythmia*, 958 F.2d at 1057, 22 USPQ2d at 1036). A claim is limited to a practical application when the process as claimed produces a concrete, tangible and useful result; i.e. the process recites a step or act of producing something that is concrete, tangible and useful. Merely claiming nonfunctional descriptive material stored in a computer readable medium, without "useful, concrete and tangible" result to have a practical application, does not make the invention eligible for patenting.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basser et al (US 5,539,310), and further in view of deCharms et al (US 6,996,261).

As regards to Claims 1 and 8, Basser et al teach a method and a computer readable medium to estimate a value of a diffusion tensor from DT-MRI data obtained on a plurality of test subjects (figures 1,3,4, 6 and 8; column 3-15, 17-19). Basser et al do not teach determining intra-subject and inter-subject variations in said data, and on the basis of the first and second values determining subject specific additive offset for adjusting the DT-MRI data. deCharms et al teach determining intra-subject and inter-subject variations in said data, and on the basis of the first and second values determining subject specific additive offset for adjusting the DT-MRI data (paragraphs 439, 449, 465, 471, 512, 600 and 645). It would have been obvious for one having ordinary skill in the art at the time the invention was made to adapt teaching of deCharms et al with the teaching of Basser et al to improve real time data improving data quality.

As regards to claims 2-5, 9-12, 15, Basser et al further teach generating adjusted data to generate a plot, having estimation and obtaining diffusion tensor data (column 3-15, 17-19).

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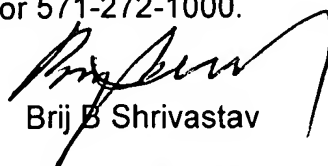
As regards to claims 6, 7 and 13-15, Basser et al do not specifically average intra-subject and inter-subject variances, which deCharms et al do (column 2-4,17,18). It would have been obvious for one having ordinary skill in the art at the time the invention was made to adapt teaching of deCharms et al with the teaching of Basser et al to improve data quality by obtaining data in real time basis:

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B. Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

March 16, 2007



Brij B Shrivastav

**BRIJ B SHRIVASTAV**  
**PRIMARY EXAMINER**